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Chen

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(54) **PACKAGING CARTON BOX STRUCTURE**

(75) Inventor: **Yen-Hung Chen**, Taipei (TW)

(73) Assignee: **Pegatron Corporation**, Taipei (TW)

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B65D 43/16 (2006.01)

(52) **U.S. Cl.** **229/236**; 229/125.08; 229/125.31; 229/178; 229/240

(58) **Field of Classification Search** 229/125.08, 229/125.31, 125.32, 151, 152, 222, 236, 229/240

See application file for complete search history.

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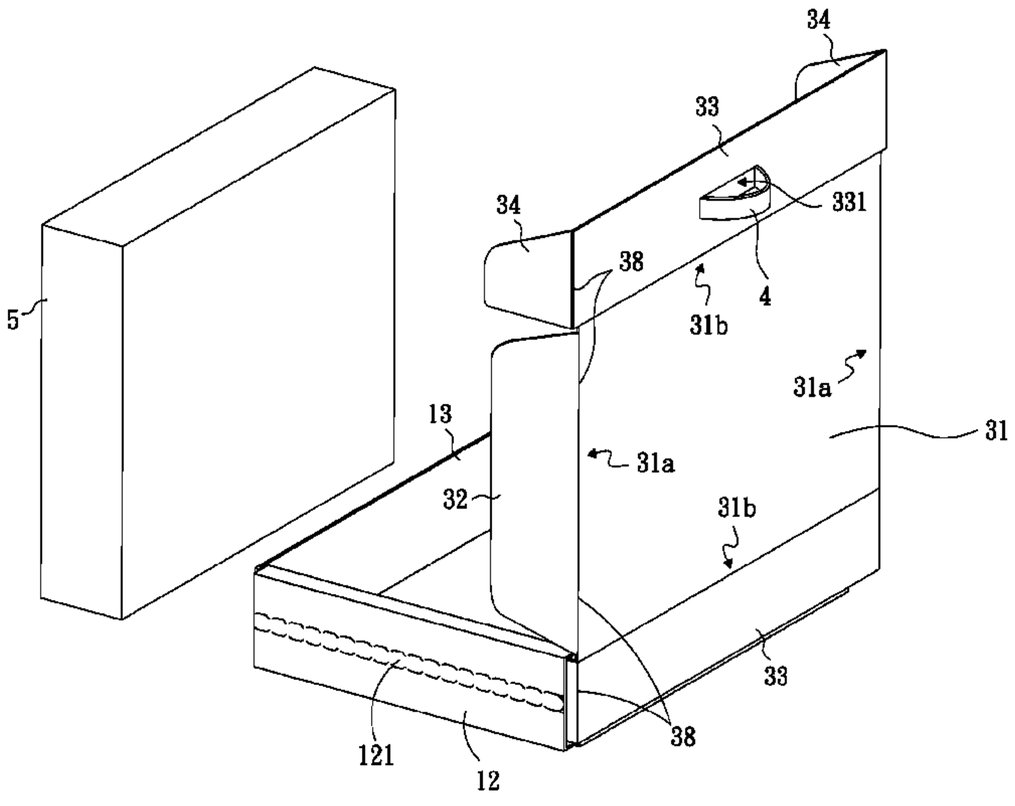
Primary Examiner — Gary Elkins

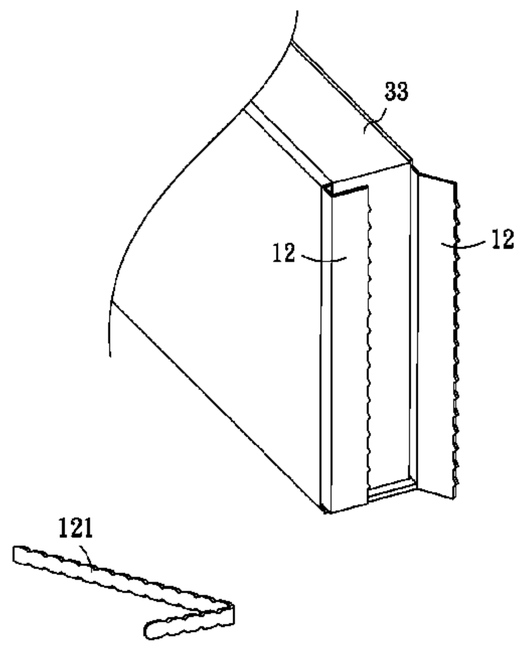
(74) *Attorney, Agent, or Firm* — Thomas, Kayden, Horstemeyer & Risley, LLP

(57) **ABSTRACT**

A packaging carton box structure includes a first sheet and a second sheet, and a pre-tearing portion is disposed on a first side plate of the first sheet. After the first sheet and the second sheet are bent, an object is packaged, and then, after the packaged object is placed on a placement plane, the pre-tearing portion is torn, so as to take out the object along a direction parallel to the placement plane, which is time-saving and labor-saving, and further prevents the object from falling off to result in damages when being taken out.

15 Claims, 9 Drawing Sheets





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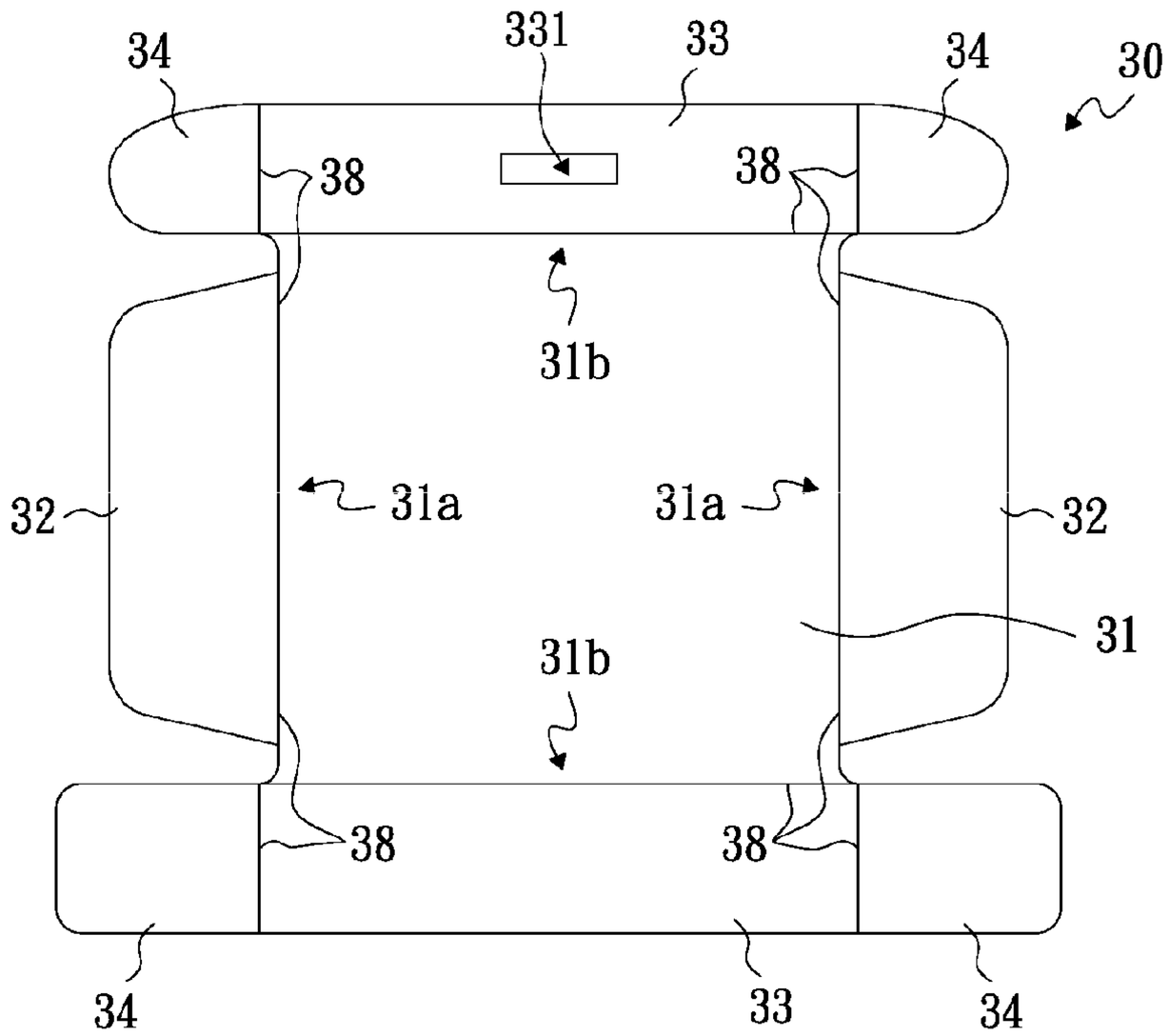
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FIG. 1A

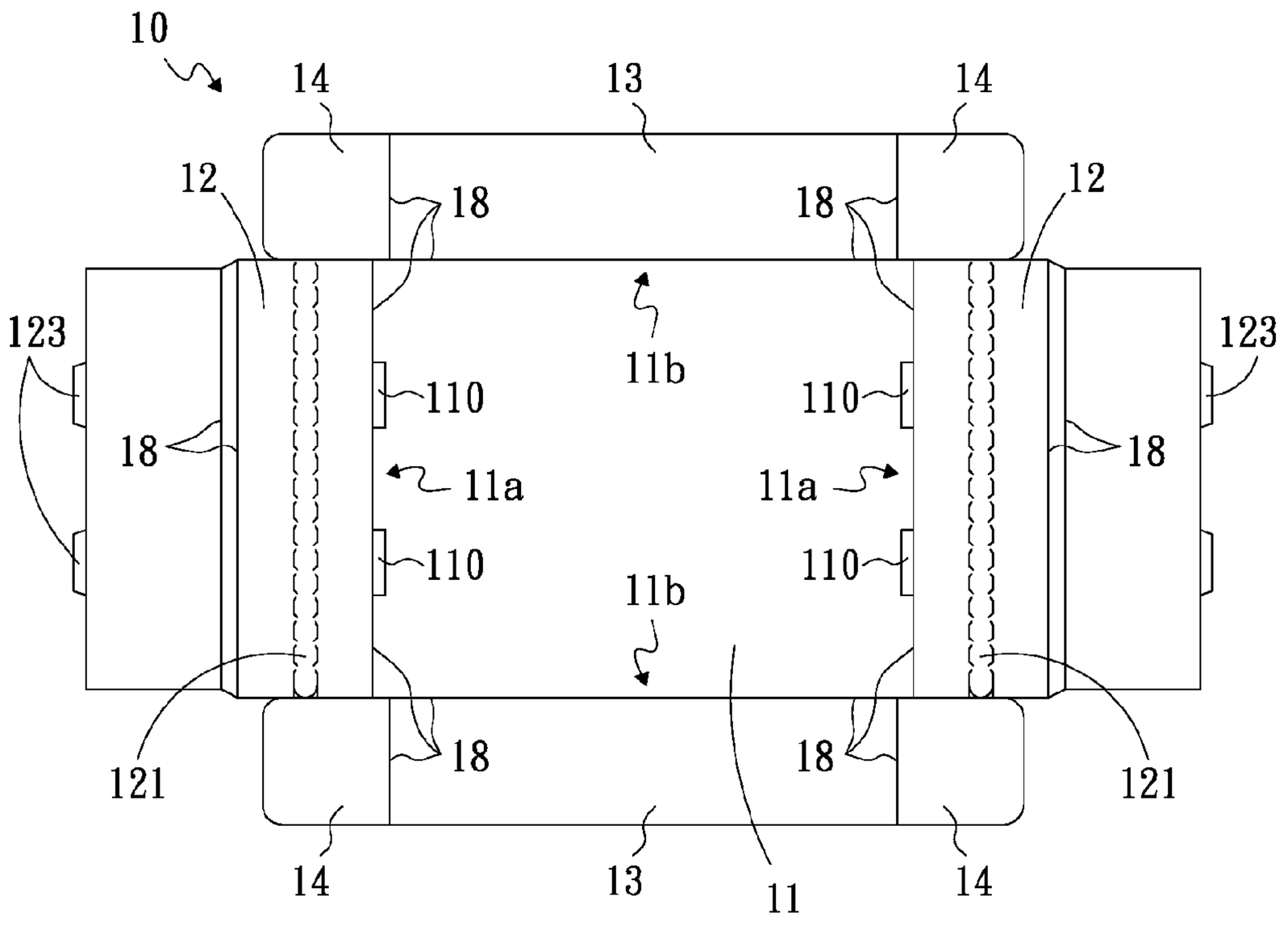
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FIG. 1B

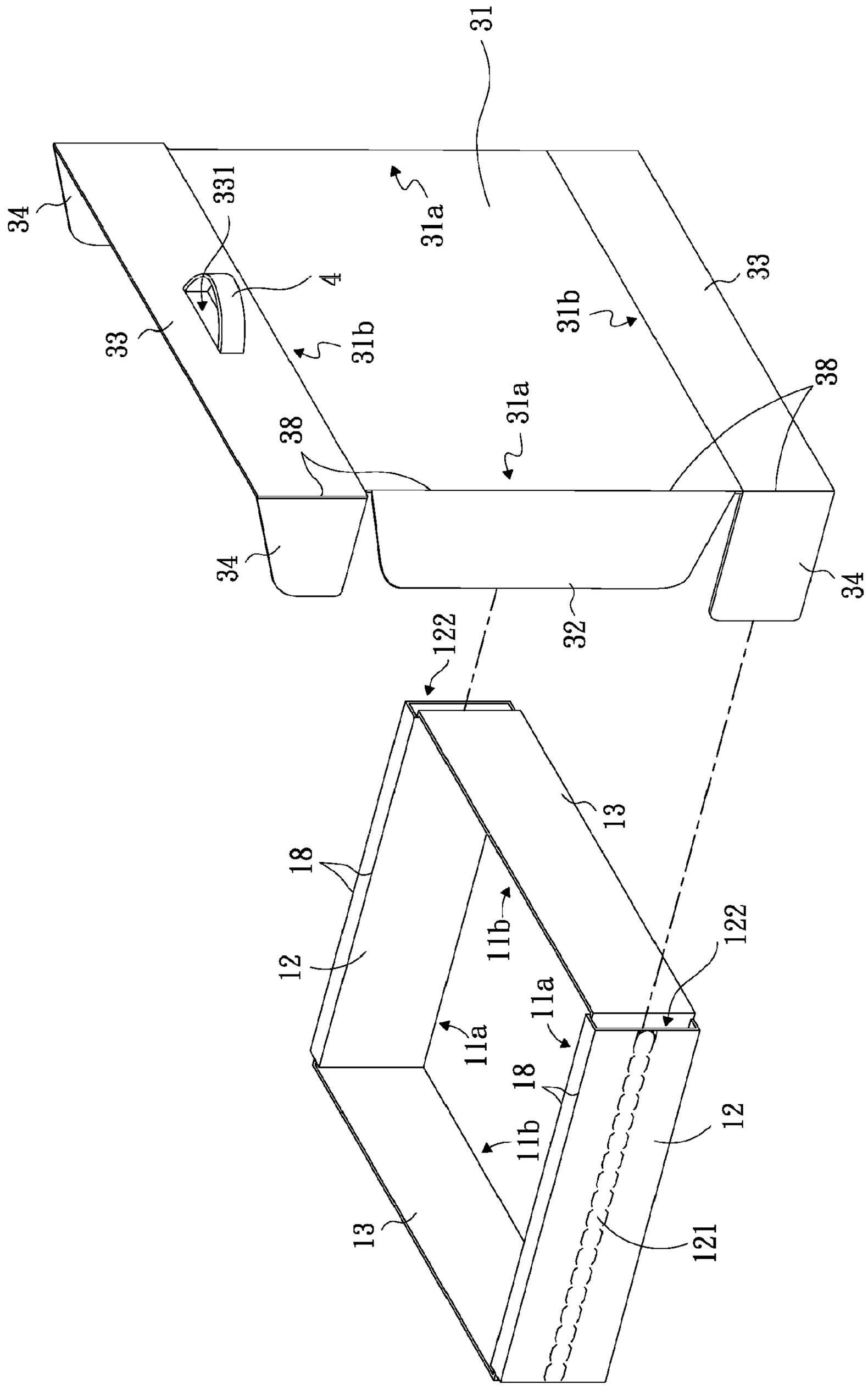
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FIG. 2

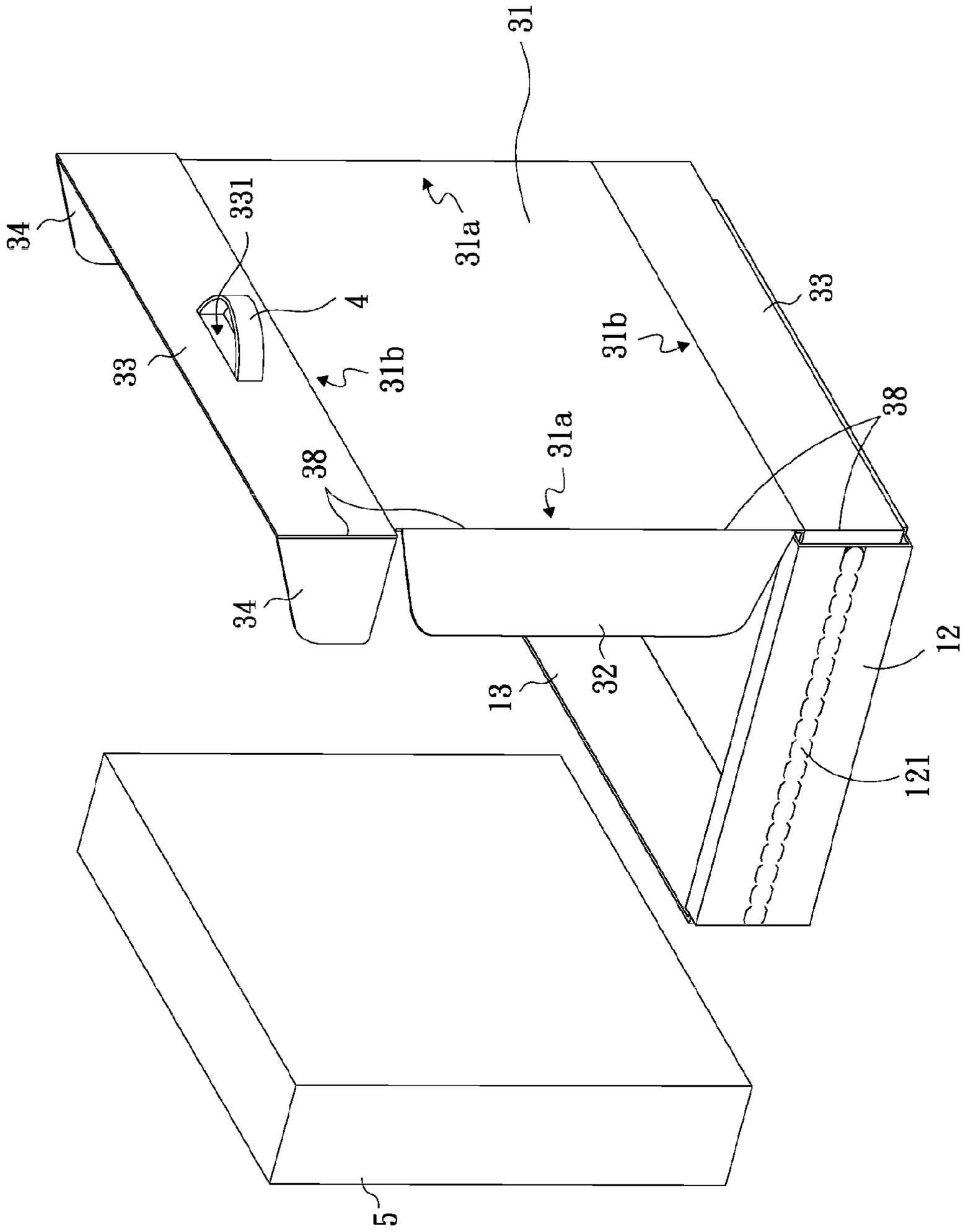

FIG. 3

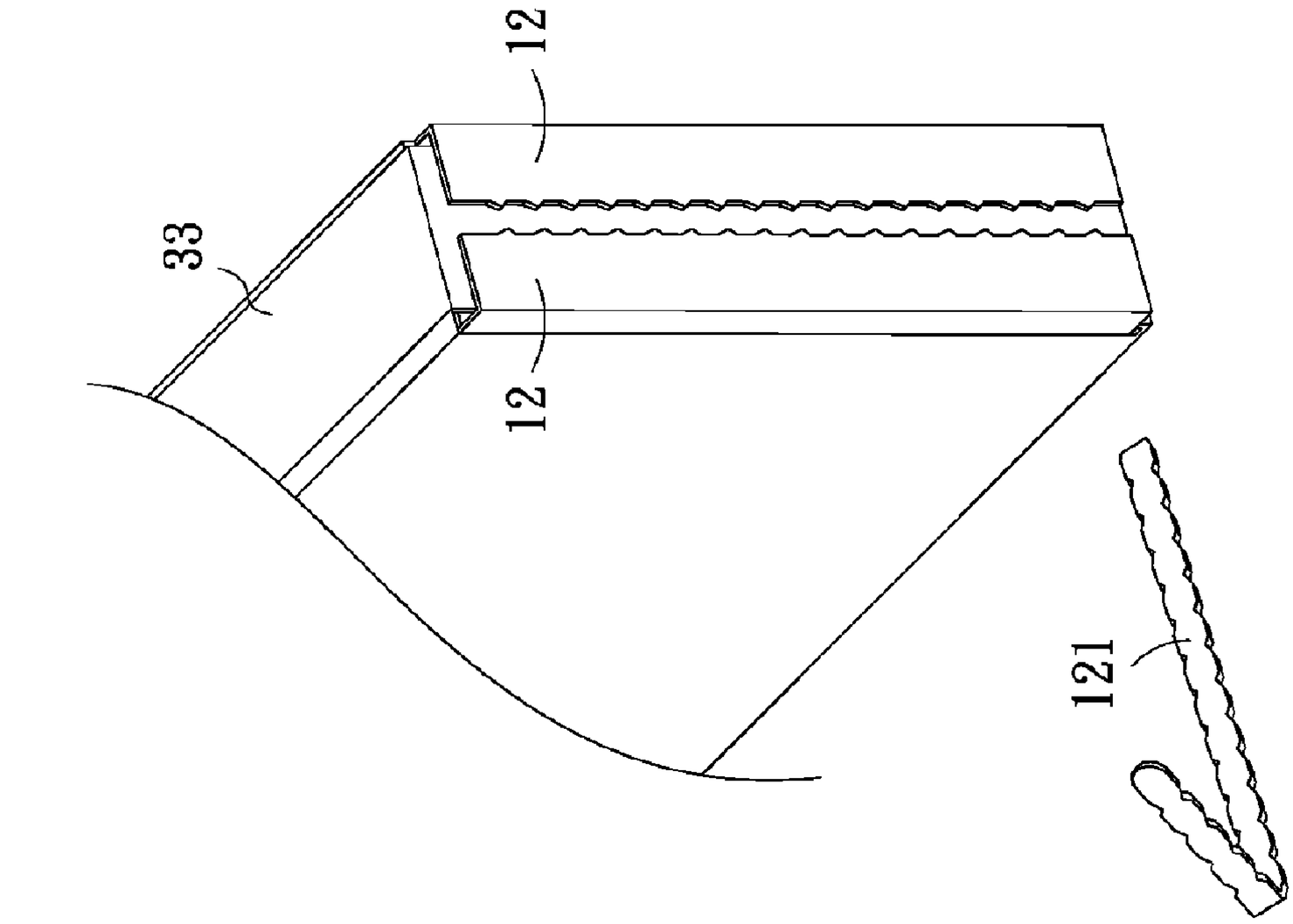

FIG. 4B

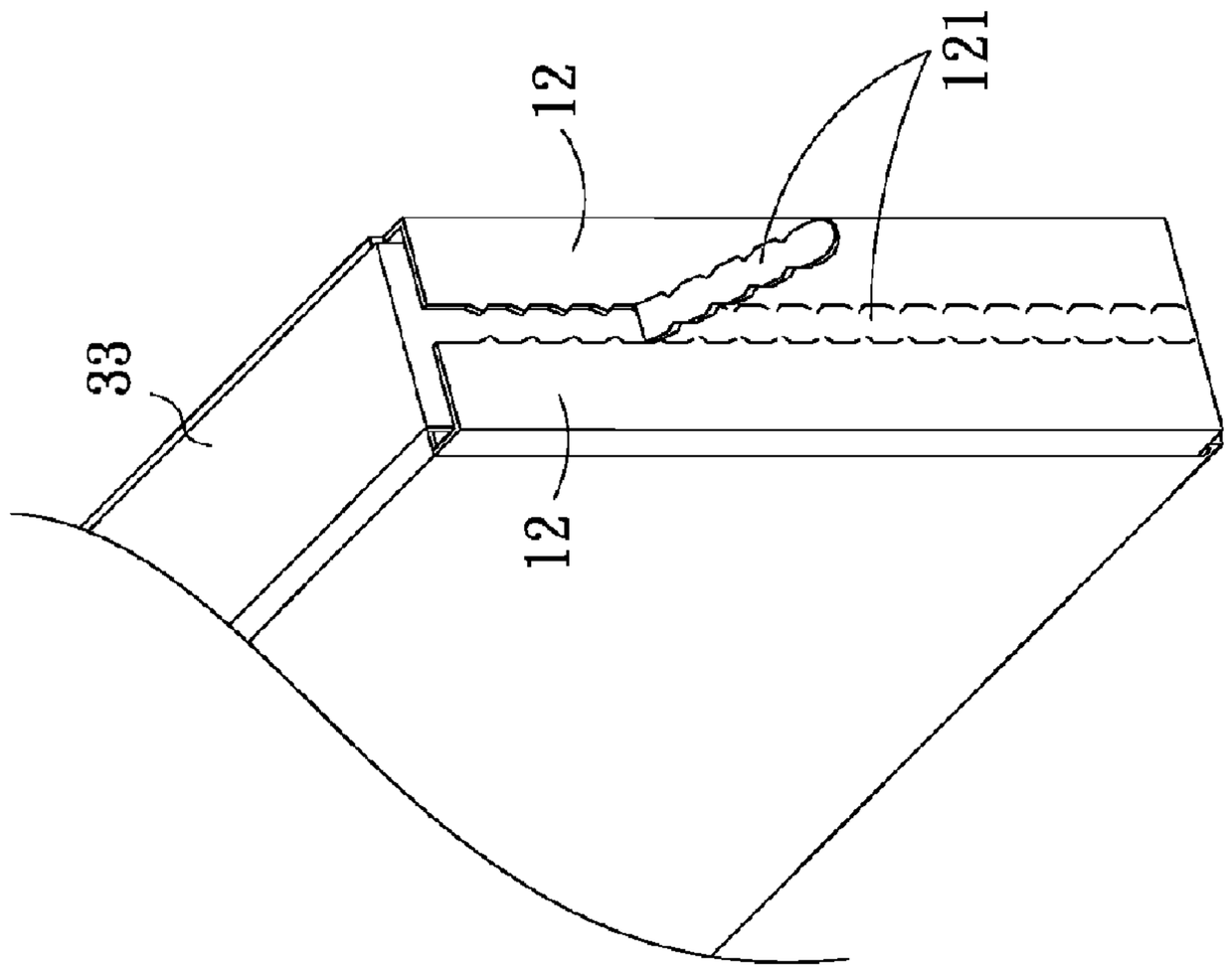

FIG. 4A

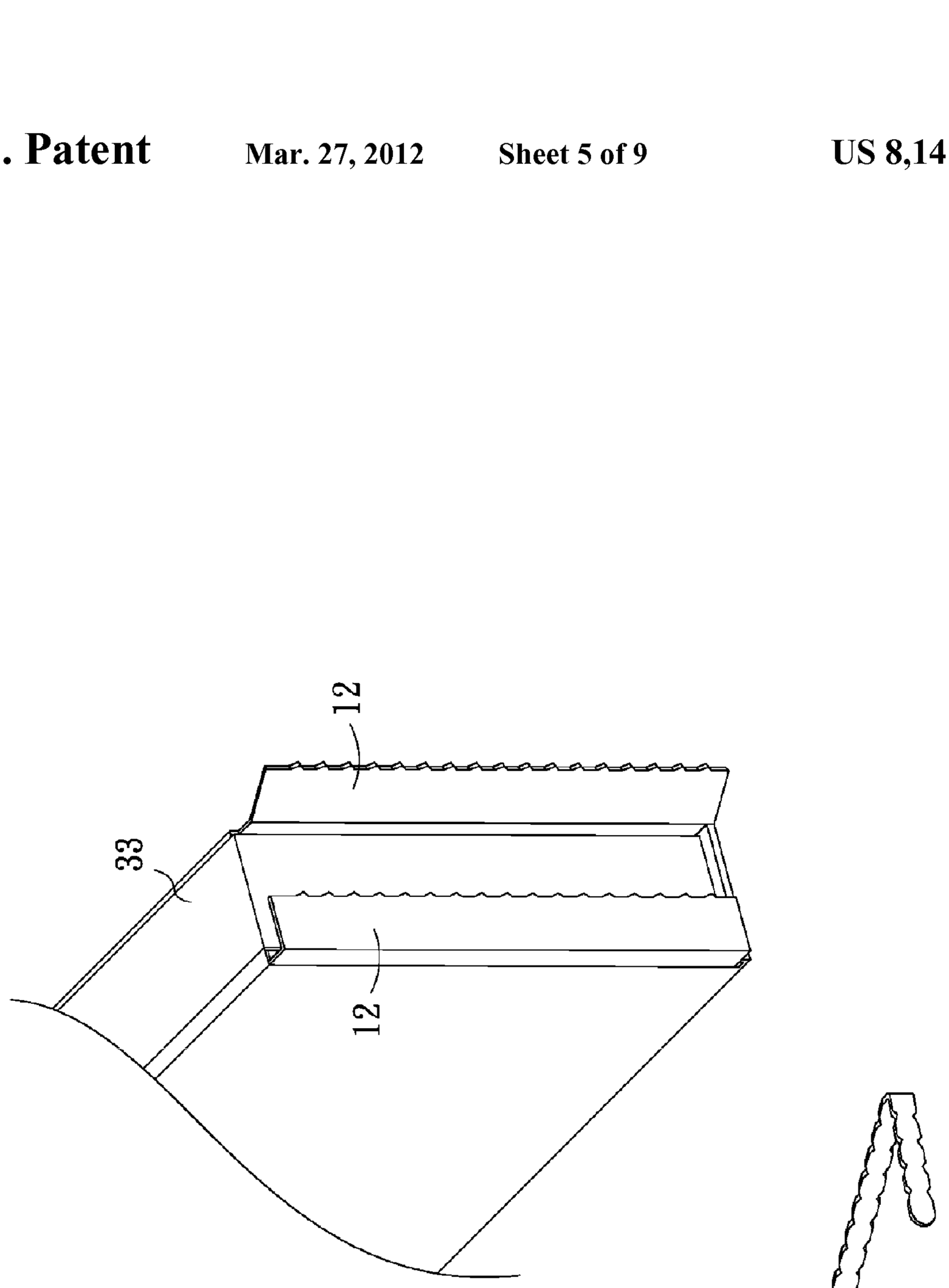

FIG. 4C

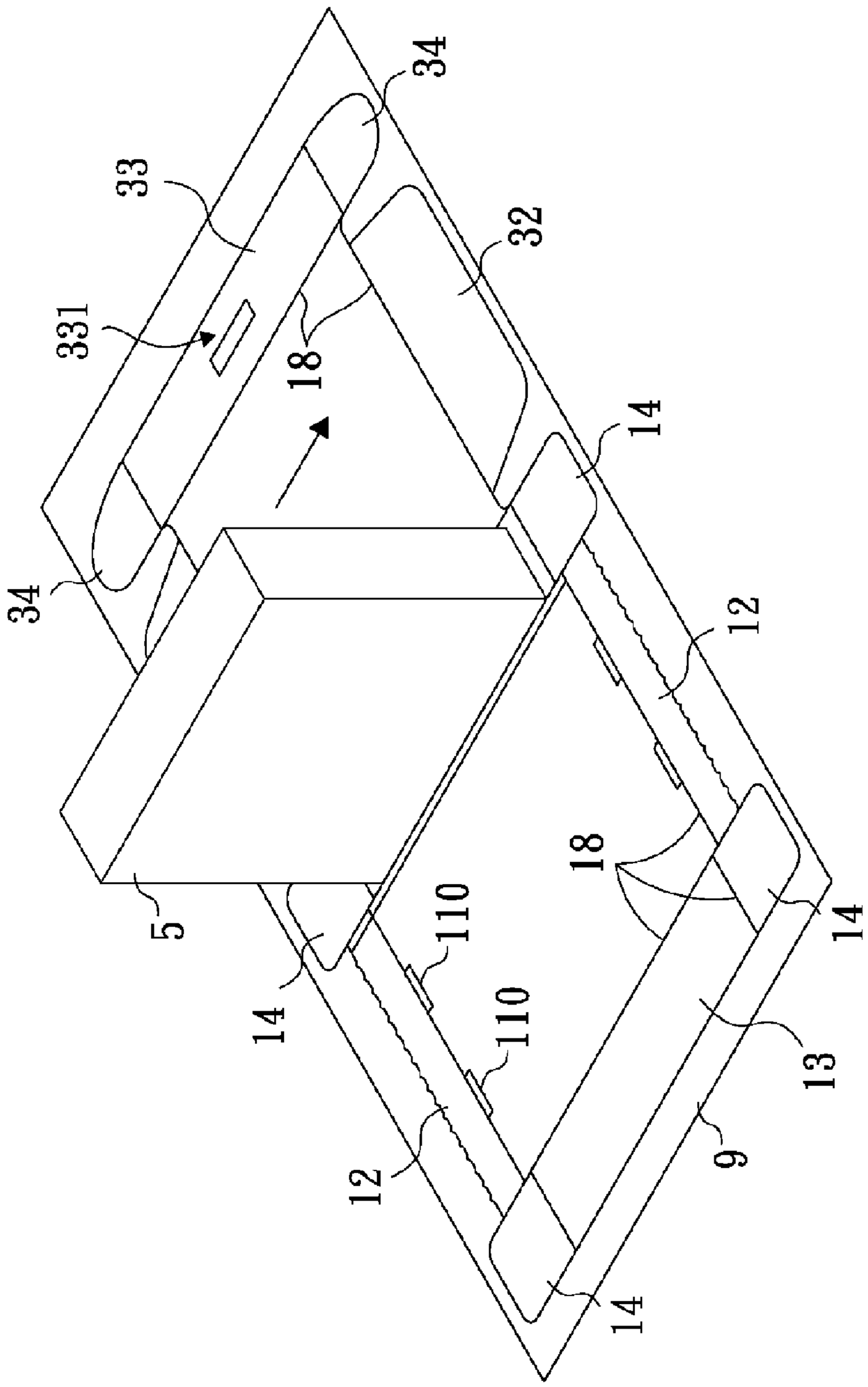

FIG. 5

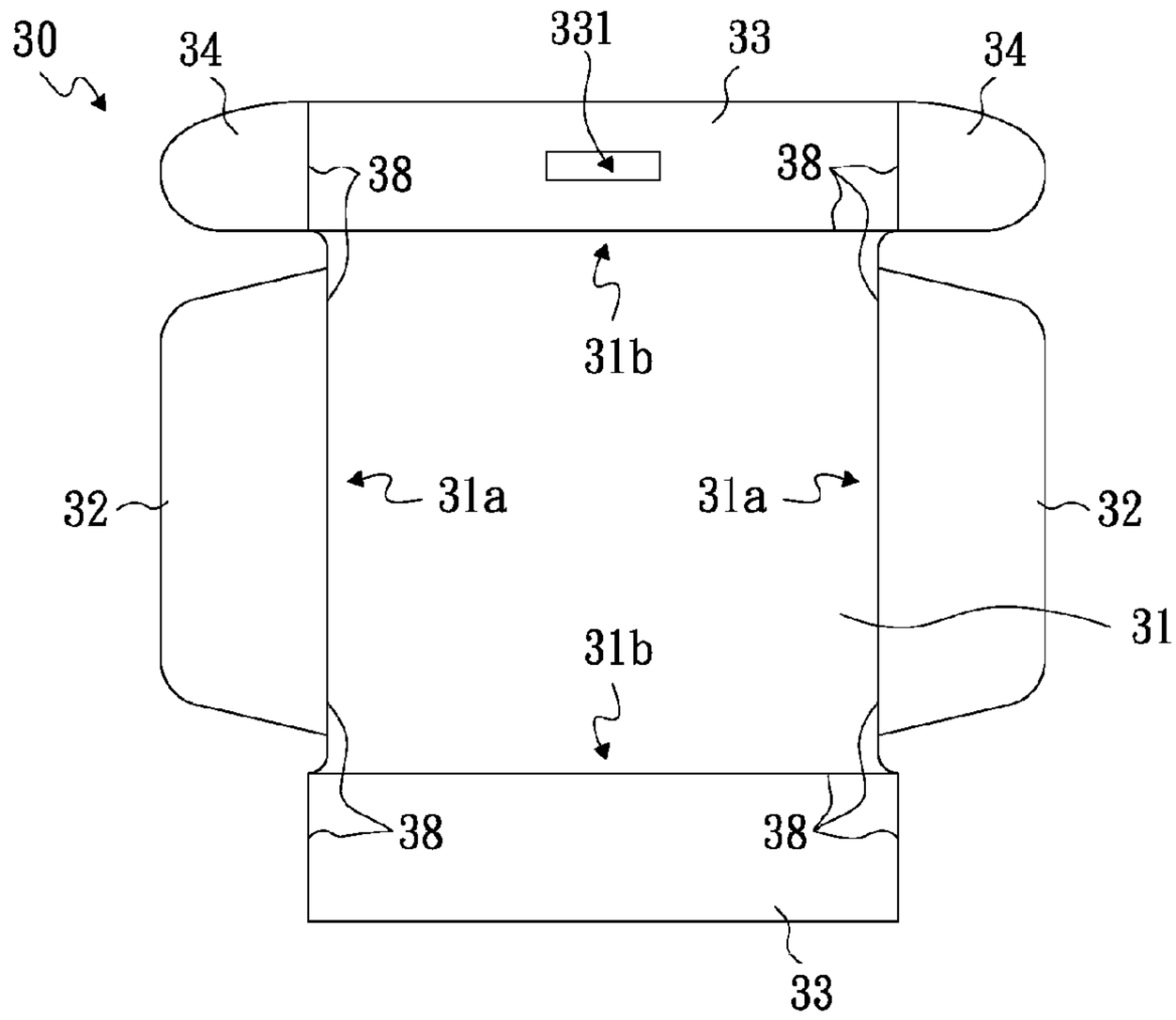
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FIG. 6A

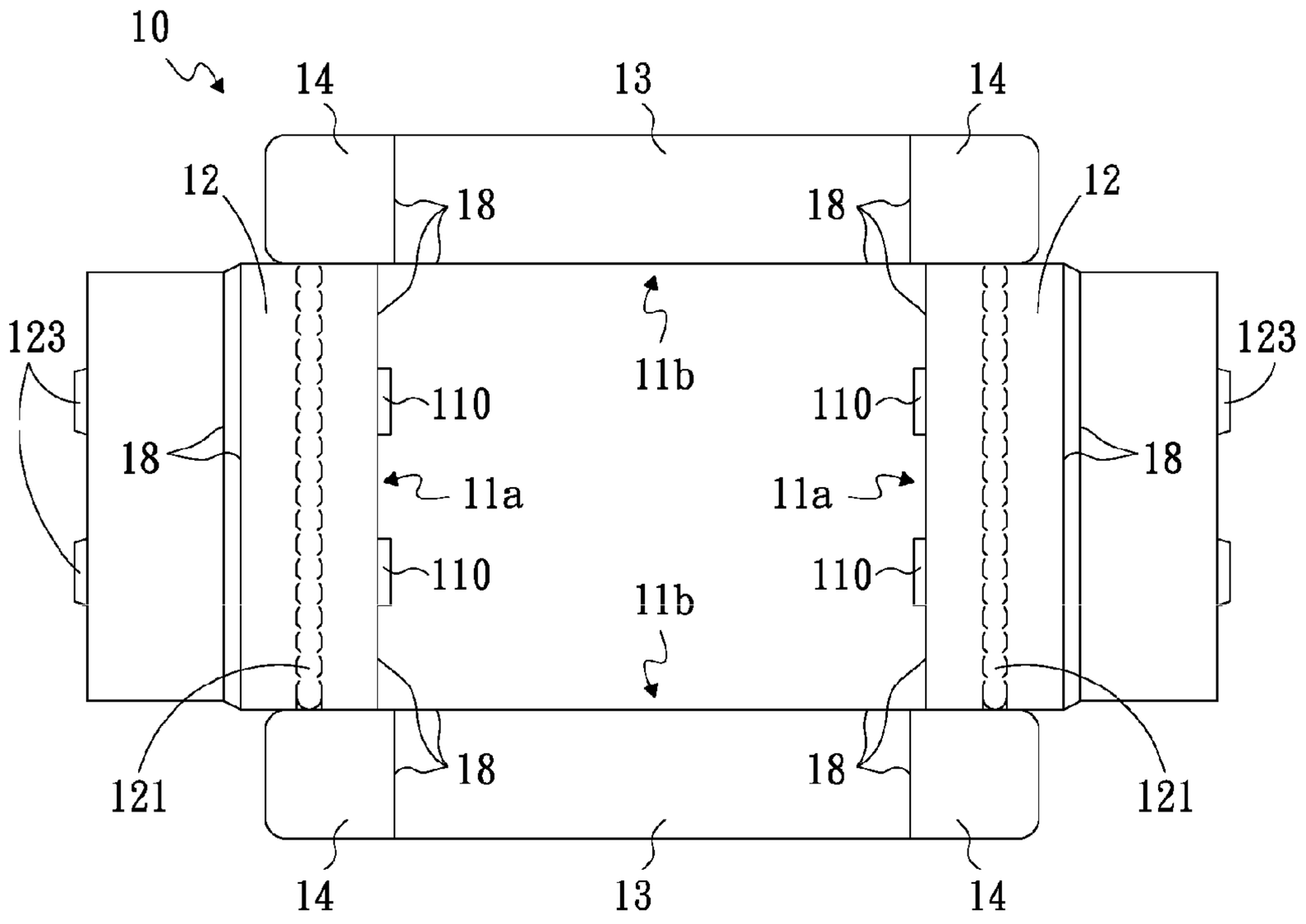
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FIG. 6B

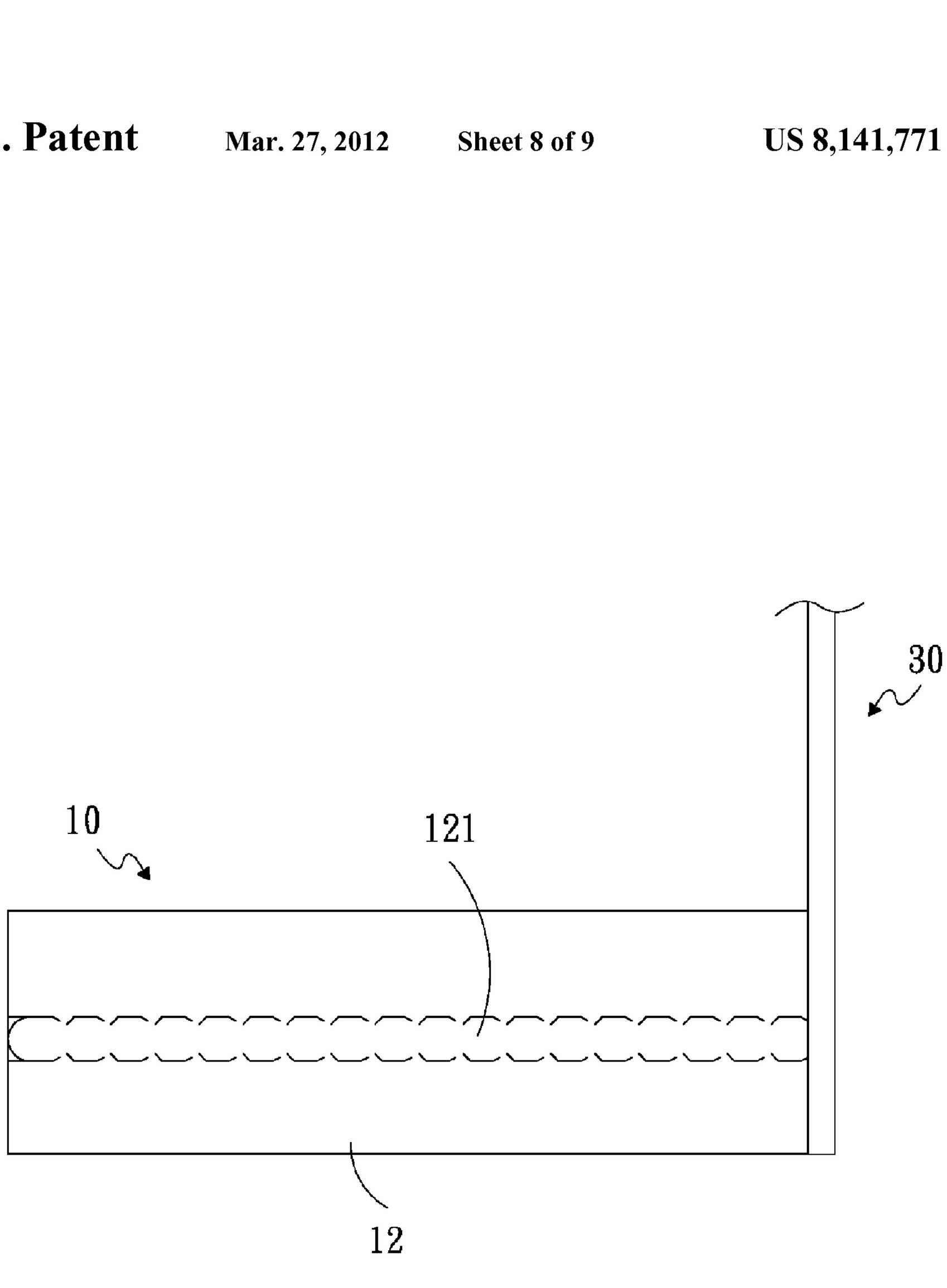

FIG. 7

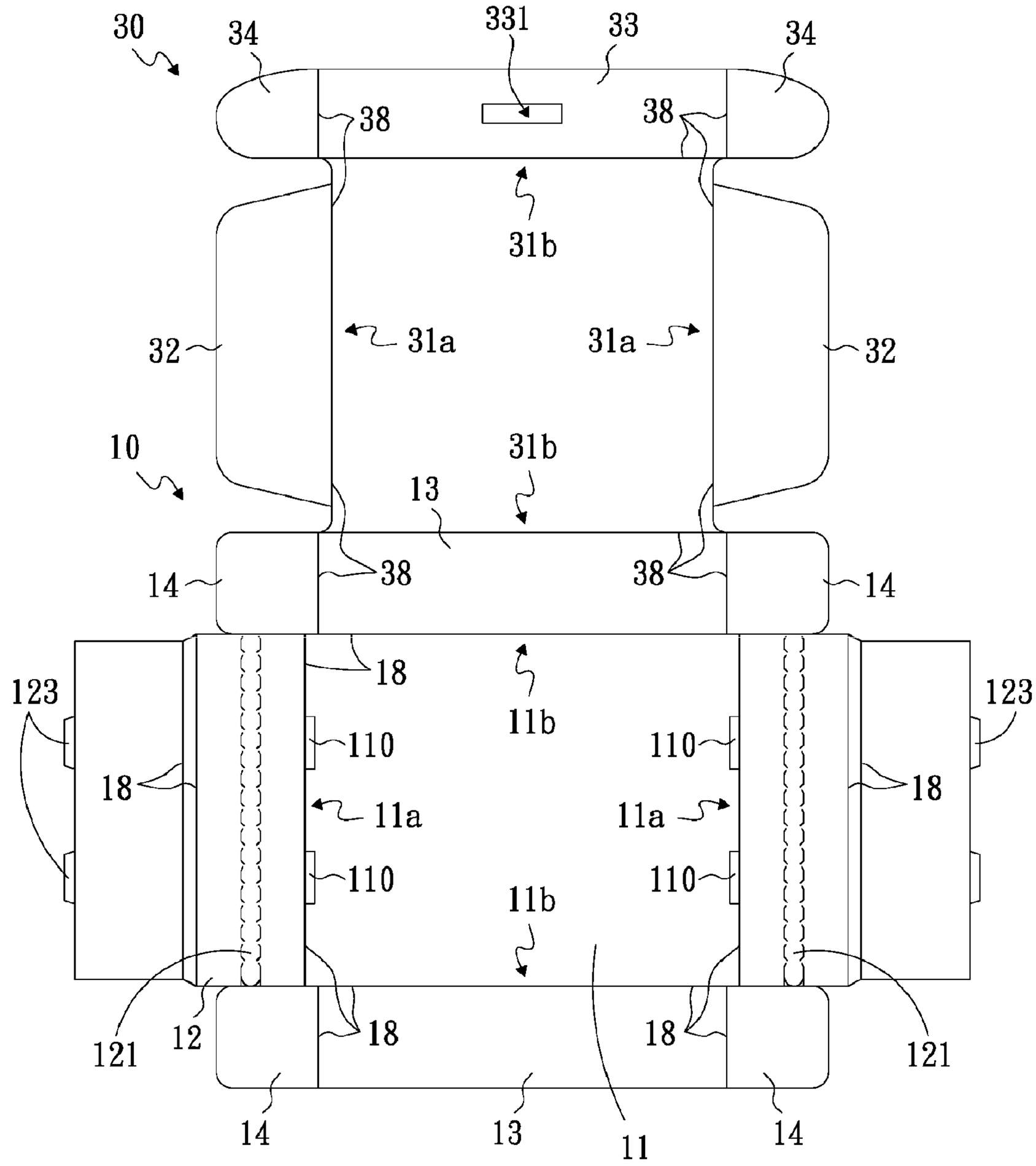
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FIG. 8

PACKAGING CARTON BOX STRUCTURE

CROSS-REFERENCES TO RELATED APPLICATIONS

This non-provisional application claims priority under 35 U.S.C. §119(a) on Patent Application No. 97132809 filed in Taiwan, R.O.C. on 2008/8/27, the entire contents of which are hereby incorporated by reference

BACKGROUND

1. Technical Field

The present invention relates to a packaging carton box, and more particularly to a packaging carton box structure, which enables an object accommodated therein to be conveniently taken out.

2. Related Art

For a common carton box used to package an object, mostly a paperboard or a planar packaging material with an appropriate thickness is bent and then bound up to form a hollow hexahedral box, and then an object to be packaged is placed in the box, and a buffer material made of Styrofoam, sponge, and other foaming materials is inserted in the box to protect the object within the box, so as to further perform transporting, storing, selling, or other operations.

When the packaged object has a large volume or is rather heavy, during disassembly, firstly the packaging material and the object must be together uplifted and moved to a predetermined position. Then, the carton box is opened, and the object is uplifted out of the carton box in a direction vertical to the ground. However, the object has a large volume and is rather heavy, and the buffer material used to wrap the object is tightly attached to the carton box, such that it is difficult to take out the object, which is not only time-consuming and labor-consuming, but also requires the cooperation of many people to take out the object from the carton box. Furthermore, during the process of taking out the object, the object may fall off to result in damages.

SUMMARY

In view of the above, the present invention provides a packaging carton box structure, which includes a first sheet and a second sheet. The first sheet includes a first substrate, two first side plates, two first extending plates, and a plurality of first joining plates. The first substrate has two first side edges and two second side edges. The two first side edges are respectively connected to the first side plates. The first side plates have pre-tearing portions respectively, and may be bent to form inserting portions. The two second side edges are respectively connected to the first extending plates that may be bent towards the first substrate. The plurality of first joining plates is connected to the two first extending plates, and after the first extending plates are bent towards the first substrate, the first joining plates are respectively inserted into the inserting portions. The second sheet includes a second substrate and two second extending plates. The second substrate has two third side edges and two fourth side edges. The two fourth side edges are respectively connected to the second extending plates that may be bent towards the second substrate. The two second extending plates are respectively positioned on the two first extending plates, such that the second sheet covers the first sheet to form an accommodation space. After the pre-tearing portions are torn, the plurality of first joining plates is released from the inserting portions, so as to unfold the first sheet.

The present invention also provides a packaging carton box structure, which includes a first substrate, two first side plates, two first extending plates, a plurality of first joining plates, a second substrate, and a second extending plate. The first substrate has two first side edges and two second side edges. The two first side edges are respectively connected to the first side plates. The first side plates have pre-tearing portions respectively, and may be bent to form inserting portions. The two second side edges are respectively connected to the first extending plates that may be bent towards the first substrate. The plurality of first joining plates is connected to the two first extending plates, and after the first extending plates are bent towards the first substrate, the first joining plates are respectively inserted into the inserting portions. The second substrate is connected to the first extending plates, and has two third side edges and two fourth side edges, in which one of the fourth side edges is respectively connected to the second extending plate that may be bent towards the second substrate. The second extending plate is positioned on the first extending plate, such that the second substrate, the second extending plate, and the two first extending plates cover the first substrate to form an accommodation space. After the pre-tearing portions are torn, the plurality of first joining plates is released from the inserting portions, so as to unfold the first substrate.

After an object is packaged and then placed on a placement plane in the present invention, a user simply needs to tear off the pre-tearing portions, such that the first substrate is opened outwards and unfolded, and the user is enabled to take out the object having a large volume and being heavier along a direction parallel to the placement plane, thereby solving the problems in the prior art that when a packaging carton box is used to package an object having a large volume and being heavier, the object having the large volume and being heavier cannot be taken out unless the object is strenuously uplifted or the forces are applied by many people cooperatively.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1**A is a plan view (**1**) of a first embodiment of the present invention;

FIG. **1**B is a plan view (**2**) of the first embodiment of the present invention;

FIG. **2** is a schematic view of the first embodiment of the present invention during assembly;

FIG. **3** is a schematic view of the first embodiment of the present invention after assembly;

FIG. **4**A is a schematic view (**1**) of the first embodiment of the present invention when taking out an object;

FIG. **4**B is a schematic view (**2**) of the first embodiment of the present invention when taking out an object;

FIG. **4**C is a schematic view (**3**) of the first embodiment of the present invention when taking out an object;

FIG. **5** is a schematic view of the first embodiment of the present invention when two sheets are unfolded;

FIG. **6**A is a plan view (**1**) of a second embodiment of the present invention;

FIG. **6**B is a plan view (**2**) of the second embodiment of the present invention;

FIG. **7** is a schematic view of the second embodiment of the present invention after assembly; and

FIG. **8** is a plan view of a third embodiment of the present invention.

DETAILED DESCRIPTION

Referring to FIGS. **1**A, **1**B, **2**, and **3**, a packaging carton box structure according to a first embodiment of the present

invention is shown. The packaging carton box structure includes a first sheet **10** and a second sheet **30**.

The first sheet **10** includes a first substrate **11**, two first side plates **12**, two first extending plates **13**, and a plurality of first joining plates **14**. The first substrate **11** is approximately rectangular, and has two first side edges **11***a* and two second side edges **11***b* approximately vertical to each other. Openings **110** are disposed at appropriate positions on the two first side edges **11***a*. The two first side edges **11***a* are respectively connected to the first side plates **12**, and the first side plates **12** have pre-tearing portions **121** and may be bent to form inserting portions **122**. In addition, protruding portions **123** corresponding to the openings **110** are respectively extended on one side edge of each first side plate **12** that is not connected to the first substrate **11**. After the first side plates **12** are bent, the protruding portions **123** are embedded into the corresponding openings **110**. The two second side edges **11***b* are respectively connected to the first extending plates **13**, and each of the first extending plates **13** is connected to the plurality of first joining plates **14**. After the first extending plates **13** are bent towards the first substrate **11**, the plurality of first joining plates **14** is respectively inserted into the inserting portions **122**, such that the first sheet **10** is approximately configured into a box body (as shown in FIG. **2**).

In the above description, the pre-tearing portions **121** may be formed by a plurality of piercing points or cutting lines, and may be disposed merely on one of the first side plates **12**, or may be disposed on each of the first side plates **12**.

The second sheet **30** includes a second substrate **31**, two second side plates **32**, two second extending plates **33**, and a plurality of second joining plates **34**. The second substrate **31** is approximately rectangular, and has two third side edges **31***a* and two fourth side edges **31***b* approximately vertical to each other. The two third side edges **31***a* are respectively connected to the second side plates **32** that may be bent towards the second substrate **31**. The two fourth side edges **31***b* are respectively connected to the second extending plates **33** that may be bent towards the second substrate **31**. After the second side plates **32** and the second extending plates **33** are bent towards the second substrate **31**, the second sheet **30** is approximately configured into a cover. The plurality of second joining plates **34** is connected to two ends of the second extending plates **33**. After the second extending plates **33** are bent towards the second substrate **31**, the second joining plates **34** on the two ends of the second extending plates **33** are respectively inserted into the inserting portions **122** on two sides of the first substrate **11**, thereby combining the first sheet **10** with the second sheet **30**, such that the second sheet **30** covers the first sheet **10** to form an accommodation space, and an object **5** is accommodated in the accommodation space (as shown in FIG. **3**).

In addition, a plurality of first bending lines **18** is disposed on the first sheet **10**. The first bending lines **18** are respectively located between the first substrate **11** and each of the first side plates **12**, between the first substrate **11** and each of the first extending plates **13**, and between the first extending plates **13** and each of the first joining plates **14**, such that the first side plates **12** and the first extending plates **13** are bent towards the first substrate **11** along the first bending lines **18**, and the first joining plates **14** are bent towards the first extending plates **13** along the first bending lines **18**, so as to be inserted into the inserting portions **122**. A plurality of second bending lines **38** is disposed on the second sheet **30**. The second bending lines **38** are located between the second substrate **31** and each of the second side plates **32**, between the second substrate **31** and each of the second extending plates **33**, and between the second extending plates **33** and each of the second joining plates **34**, such that the second side plates **32** and the second extending plates **33** are bent towards the second substrate **31** along the second bending lines **38**, and the second joining plates **34** are bent towards the second extending plates **33** along the second bending lines **38**, so as to be inserted into the inserting portions **122**. Furthermore, in the present invention, a holding portion **4** is disposed on one of the second extending plates **33**, and preferably, an opening **331** is disposed in the second extending plate **33**, such that the holding portion **4** passes through the opening, which thus can be conveniently carried by the user.

Referring to FIGS. **4**A, **4**B, and **4**C, after packaging the object **5** by using the packaging carton box structure according to the present invention, the user moves the packaging carton box structure together with the object **5** accommodated therein to a placement plane **9** at a predetermined position. After the structure is stably placed, the first side plates **12** are torn along the pre-tearing portions **121**, and the first substrate **11** and the second substrate **31** are pulled outwards, such that the first joining plates **14** and the second joining plates **34** are separated from the inserting portions **122**, such that the first sheet **10** and the second sheet **30** are opened outwards and unfolded (as shown in FIG. **5**). In this manner, the user may take out the object **5** having a large volume and being heavier in a direction parallel to the placement plane **9**, that is, the user applies a force to push or pull the object **5** to parallelly move out of the packaging carton box structure, without strenuously uplifting the object having a large volume and being heavier out of the carton box, thereby preventing the object **5** from falling off when being taken out to result in damages.

In addition, when the packaging carton box structure of the present invention is placed on the placement plane **9**, besides placing the packaging carton box structure to be upright on the placement plane **9** by enabling the first extending plates **13** and the second extending plates **33** to be attached to the placement plane **9**, the user may place the packaging carton box structure to lie on the placement plane **9** by enabling the first substrate **11** or the second substrate **31** to be attached to the placement plane **9**. In this case, after the pre-tearing portions **121** are torn off, the first sheet **10** and the second sheet **30** are opened outwards and unfolded, and the object **5** is taken out in a direction parallel to the first substrate **11** or the second substrate **31**.

Referring to FIGS. **6**A, **6**B, and **7**, a packaging carton box structure according to a second embodiment of the present invention is shown. In this embodiment, no second joining plate **34** is extended on one of the second extending plates **33** of the second sheet **30**. Instead, the second extending plate **33** is positioned on the first extending plate **13** of the first sheet **10** in an adhesion manner, thereby combining the first sheet **10** with the second sheet **30**, such that the second sheet **30** covers the first sheet **10** to form the accommodation space. Here, the second extending plate **33** is adhered to the first extending plate **13** by using glue or hook-and-loop fasteners, but the present invention is not limited here.

Referring to FIG. **8**, a packaging carton box structure according to a third embodiment of the present invention is shown. As compared with the first embodiment and the second embodiment, this embodiment does not have a structure with the first sheet **10** and the second sheet **30** as two separated elements, but the first sheet **10** and the second sheet **30** are integrally formed. Specifically, the two first side edges **11***a* of the first substrate **11** are respectively connected to the first side plates **12**, the two second side edges **11***b* thereof are respectively connected to the first extending plates **13**, and one of the first extending plates **13** is connected to the fourth side edge **31***b* of the second substrate **31**. The first substrate

11, the two first side plates 12, the two first extending plates 13, and the plurality of first joining plates 14 are respectively bent along the first bending lines 18 to form a box body. The second substrate 31, the two second side plates 32, the second extending plate 33, and the plurality of second joining plates 34 are respectively bent along the second bending lines 38 to form a cover body. Thus, an accommodation space is formed to accommodate the object 5.

The packaging carton box structure according to the present invention is easily assembled and conveniently wraps objects. After wrapping an object, the packaging carton box structure is placed on a placement plane. Then, the first side plates are torn along the pre-tearing portions, and the first substrate or the second substrate is opened outwards and unfolded. The user is enabled to take out the object having a large volume and being heavier along a direction parallel to the placement plane, thereby solving the problems in the prior art that when a packaging carton box is used to package an object having a large volume and being heavier, the object having the large volume and being heavier cannot be taken out unless the object is strenuously uplifted or the forces are applied by many people cooperatively.

While the present invention has been described by the way of example and in terms of the preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments. To the contrary, it is intended to cover various modifications and similar arrangements. Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

What is claimed is:

1. A packaging carton box structure, comprising:

a first sheet, comprising:

a first substrate, having two first side edges and two second side edges;

two first side plates, respectively connected to the first side edges, the first side plates being respectively bent to form inserting portions, and an outer side of each of the first side plates comprises a pre-tearing portion;

two first extending plates, respectively connected to the second side edges; and

a plurality of first joining plates, connected to the first extending plates, the first extending plates being bent towards the first substrate, the first joining plates being respectively inserted into the inserting portions; and

a second sheet, comprising:

a second substrate, having two third side edges and two fourth side edges; and

two second extending plates, respectively connected to the fourth side edges, the second extending plates being bent towards the second substrate, and respectively positioned on the first extending plates, such that the second sheet covering the first sheet to form an accommodation space,

wherein when the pre-tearing portions are torn off, the first joining plates are released from the inserting portions, so as to unfold the first sheet.

2. The packaging carton box structure according to claim 1, further comprising: a plurality of first bending lines, located between the first substrate and the first side plates, between the first substrate and the first extending plates, and between the first extending plates and the first joining plates.

3. The packaging carton box structure according to claim 1, further comprising: a plurality of second joining plates, connected to the second extending plates, wherein the second joining plates are respectively inserted into the inserting portions after the second extending plates are bent towards the second substrate.

4. The packaging carton box structure according to claim 3, further comprising: two second side plates, respectively connected to the third side edges, wherein the second side plates are bent towards the second substrate.

5. The packaging carton box structure according to claim 4, further comprising: a plurality of second bending lines, located between the second substrate and the second side plates, between the second substrate and the second extending plates, and between the second extending plates and the second joining plates.

6. The packaging carton box structure according to claim 1, further comprising: a holding portion, located on the second extending plate.

7. The packaging carton box structure according to claim 1, wherein the first substrate comprises a plurality of openings, the first side plates further comprise a plurality of protruding portions, and the protruding portions are respectively embedded into the openings after the first side plates are bent.

8. The packaging carton box structure according to claim 1, wherein the second extending plates are positioned on the first extending plates in an adhesion manner.

9. A packaging carton box structure, comprising:

a first substrate, having two first side edges and two second side edges;

two first side plates, respectively connected to the first side edges, the first side plates being respectively bent to form inserting portions, and an outer side of each of the first side plates comprises a pre-tearing portion;

two first extending plates, respectively connected to the second side edges;

a plurality of first joining plates, connected to the first extending plates, the first extending plates being bent towards the first substrate, the first joining plates being respectively inserted into the inserting portions;

a second substrate, connected to the first extending plates, and comprising two third side edges and two fourth side edges; and

a second extending plate, connected to the fourth side edges opposite to the first extending plates connected to the second substrate, the second extending plate being bent towards the second substrate, and respectively positioned on the first extending plate, such that the second substrate, the second extending plate, and the first extending plates covering the first substrate to form an accommodation space,

wherein when the pre-tearing portions are torn off, the first joining plates are released from the inserting portions.

10. The packaging carton box structure according to claim 9, further comprising: a plurality of first bending lines, located between the first substrate and the first side plates, between the first substrate and the first extending plates, and between the first extending plates and the first joining plates.

11. The packaging carton box structure according to claim 9, further comprising: a plurality of second joining plates, connected to the second extending plate, wherein the second joining plates are respectively inserted into the inserting portions after the second extending plate is bent towards the second substrate.

12. The packaging carton box structure according to claim 11, further comprising: two second side plates, respectively connected to the third side edges, wherein the second side plates are bent towards the second substrate.

13. The packaging carton box structure according to claim 12, further comprising: a plurality of second bending lines,

located between the second substrate and the second side plates, between the second substrate and the second extending plate, and between the second extending plate and the second joining plates.

14. The packaging carton box structure according to claim **9**, further comprising: a holding portion, located on the second extending plate.

15. The packaging carton box structure according to claim **9**, wherein the first substrate comprises a plurality of openings, the first side plates further comprise a plurality of protruding portions, and the protruding portions are respectively embedded into the openings after the first side plates are bent.

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